A New Way of Doing Business

NASA
Commercial
Technology
Team

Implementation of the

AGENDA FOR CHANGE

NASA's Commercial Technology Policy

May 1996

To All NASA Employees:

Daniel S. Goldin
NASA Administrator

Within this document are specific policies supporting the NASA commercial technology mission. This is the second in a series of documents that I have signed outlining the Agency's new focus on commercial technology and encouraging development of commercial products and services from the attributes of space. These commercial technology policies support the Agenda for Change document, which was recently issued to all employees. Both documents emphasize our commitment to develop new ways of doing business that proactively integrate NASA's objectives with those of U.S. industry from the onset, thus saving both parties time and money and improving our international competitive position.

The policies outlined here have been developed through the efforts of the NASA Commercial Technology Management Team and reflect inputs from each Field Center and Headquarters Program Office. This set of policies is intended to provide guidance to ensure that the benefits of NASA's research efforts are imparted to the U.S. economy as rapidly and effectively as possible. If appropriately used, these policies will also provide a means of buttressing NASA's research through the attraction of industry investments in areas of mutual interest.

It is important to remember that these policies may be further revised as we learn what works and what does not. We will, undoubtedly, need to make mid-course corrections along the way. If you or your customers have constructive input to this process, I strongly encourage you to speak up, quickly and loudly, and forward your comments to the NASA Commercial Technology Management Team. As new or improved tools to achieve our commercial objectives are developed, they will be provided to you. Those of you who are involved with commercializing technology and forming partnerships will get the timely support you need.

Once again, I must emphasize that the commercial technology mission is critical to NASA's future. It will ensure that NASA remains a relevant part of the national economy and that the American economic system efficiently uses all resources. It is important to realize that we are all responsible for the success of this mission. Implementation of these policies should be an immediate and urgent priority for every NASA Field Center and Program Office.

We are collaborating with our private sector partners more each day. The results are more jobs, more technology applied to improve our daily lives, a more cost-effective NASA, and a stronger America of which we can all be proud. I want to thank you for your contributions and reiterate the importance of our commercial mission.

Daniel S. Goldin, Administrator
National Aeronautics and Space Administration

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Overview

It is the policy of NASA to promote commercialization of technology, comparable in importance to, and as an integral part of, its aeronautics and space missions. In accomplishing this policy, NASA supports the development and transfer of technology leading to commercial products and services. The commercialization of technologies will be pursued through a new way of doing business that involves the use of a mix of business practices which enable the Agency to more closely align its way of doing business with that of the private sector. NASA's commercial technology policy is designed to foster:

- Contractor Technology Commercialization—commercialization of technologies developed under NASA procurement contracts, grants, and cooperative agreements.
- Industry-Led Partnerships—the formation, funding, and implementation of industry-initiated and -led partnerships with NASA to develop aeronautics and space technologies, including dual-purpose technologies.
- Commercial Product Development—industry-led development of commercial products and services from space.
- Dual-Purpose Technology Development—NASA technologies development with dual-purpose applications in the aeronautics/space industry as well as in the nonaerospace commercial industry.
- Small Business Development—the formation, growth, and accelerated development of small business by bringing together the five essential contributing business success factors: technology, talent, capital, business know-how, and market need.
- Regional Alliances—alliances with state and local governments, and other Federal agencies, to stimulate and accelerate NASA partnerships with local, regional, and state economic development, to identify opportunities for fostering commercialization, and especially to provide opportunities to small and disadvantaged businesses.
- Commercial Technology Acquisition—the acquisition and use of commercial technologies in NASA projects and programs: those that are currently available in the marketplace and those that can be made available by commercial industry in the future, based on the knowledge of planned NASA requirements.
- Post-Development Technology Diffusion—the linking of existing NASA technologies with commercial applications and aggressive promotion and introduction of them into the marketplace. This technology diffusion can take the form of technology licensing or other forms of collaborations when licenses are not appropriate.

The above practices shall be considered by all NASA managers when planning each expenditure of research and development (R&D) funds. Infusion of commercially available technology shall be given highest consideration before any decision to develop technology.

Every NASA project shall implement specific plans to ensure that NASA leverages its resources through use of the above practices to convert its expenditures into a national investment. These investments should contribute to an increase in, or prevent the loss of, American jobs, increased export of products or services, and increased national productivity.

Over 80 percent of NASA R&D is performed under contract with the private sector. NASA will determine where the rights to commercialize Agency-funded technology shall reside. However, most rights to commercialize NASA-funded technology reside with contractors. Therefore, the American public shall derive substantial technology commercialization benefit from the work of NASA contractors.

The Field Centers shall seek innovative approaches and mechanisms to increase NASA contractor commercialization of technology derived from their work for NASA. Approaches include commercialization considerations during contractor selection, contract implementation, and contract close-out, including such devices as commercialization performance provisions in statements of work and an appropriate percentage of award fee criteria tied to commercialization efforts. Requests for Proposals (RFP's) should be structured in a manner that provides a direct relationship between NASA's mission and technology transfer plans when appropriate. This can be accomplished by encouraging contractors to develop technologies with potential for commercial application and to submit plans for the transfer of such technologies to the commercial marketplace. These approaches shall extend to support service contracts as appropriate, as well as material and service prime contracts. When appropriate, they shall also be required, by "flowdown," of subcontractors.

Partnerships

Partnerships are business arrangements among the government, industry, and/or academia wherein each party commits resources to the accomplishment of agreed-to objectives and shares the risks and rewards of the endeavor. By the end of FY 1997, NASA shall measure the extent of its R&D partnerships with industry against the National Performance Review goal of 10 percent to 20 percent of the NASA R&D budget.

This goal is not a tax or set-aside. It does not aim at doing 10 percent to 20 percent more work by adding industry R&D objectives; instead, it aims at achieving 10 percent to 20 percent of NASA's mission and technology objectives in a new and different way through commercial partnerships.

Work Agreements

All Work Authorization agreements between Enterprise Administrators and Field Center Directors for the performance of R&D shall identify those areas requiring new technology development with commercial potential. Strong consideration should be given to appropriate partnership arrangements with the commercial sector in conducting the resulting R&D. These partnerships should result in commercial applications creating new products, processes, or services. Appropriate deliverables and metrics should be identified and progress toward achieving these commercial objectives should be included in authorization reports.

It is in the financial interest of NASA contractors to maximize commercial utilization of technology developed while working on NASA projects. To achieve the maximum utilization, NASA contractors must actively pursue transfer of the technology to commercial uses. NASA R&D procurement activities involving new technology development should, therefore, include clearly defined Technology Transfer Plans for commercial application of technologies as reported through the New Technology Reporting Requirements. These requirements for a Technology Transfer Plan do not apply to engineering development or operational programs. NASA will put appropriate procedures in place to evaluate and reward those contractors for including and implementing such plans. The effort under the Technology Transfer Plan is intended to be separate, but not duplicative, of the effort required by NFS 18-52.227-70 NEW TECHNOLOGY. A clearly defined Technology Transfer Plan shall include the following elements as appropriate:

a. The dissemination of reports that identify promising technologies developed under the contract having dual-use application. The reports will be organized by technology type and shall contain (1) a statement of need pertaining to the situation that led to the development of the technology, (2) the approach being used or that was used in developing the technology, (3) a statement of technology benefits that will allow a potential user to evaluate the technology for the user's needs, (4) a list of potential users of the technology, (5) the status of the development effort, and (6) a point of contact who is familiar with the technology.

b. The development of dual-use technologies, which have application both within and outside the aerospace community, whenever possible.

c. The education of the contractor's work force in technology transfer activities.

d. Assistance to subcontractors with technology transfer activities.

e. Outreach activities aimed at marketing and commercializing technology.

f. Collaborative efforts with third parties for the purpose of effectively transferring technology.

g. Application engineering work for the purpose of adapting the developed technology to a specific commercial use.

h. The designation of an organizational structure for coordinating all technology transfer activities that demonstrates a strong management commitment to technology transfer.

i. Support for NASA's outreach efforts pertaining to technology transfer by assisting in the resolution of technical problems originating from industry.

j. The recoupment of Government funds provided to transfer technology and to make the program financially self-sufficient.

k. Metrics designed to monitor the progress and quantify the success of the technology transfer program.

l. Quarterly reports pertaining to the activities conducted under the contractor's Technology Transfer Plan, which includes metrics and the status of commercialization activity of patent rights waived to the contractor by NASA.

Competition with Private Sector Providers

The overall objective of NASA's Commercial Technology Mission is to enhance U.S. economic security and industrial competition in world markets. This mission shall be conducted in such a way that the private sector is encouraged and given maximum opportunity for innovative contributions to the mission. When private firms demonstrate an ability to duplicate or replace NASA products or services without subsidy from Federal funds, NASA organizations shall energetically encourage the private venture and agree to an orderly transfer of those operations which are not inherently Government functions.

Delegation and the Role of the Field Centers

In addition to the 10–20 percent Agencywide goal discussed under an earlier section on "Partnerships," agreements between Enterprise Administrators and Center Directors will make available, by the year 2000, 1 percent of their R&D budget associated with new technology development for purposes of partnerships through technology transfer and commercialization as defined by the National Performance Review. Enterprise Administrators and Center Directors will determine the technology development items within the R&D budget upon which to base the 1 percent. Engineering development and operational programs will not be included in the R&D budget which will be used to calculate the 1 percent. Enterprise Administrators and Center Directors who do not currently meet this threshold should incrementally increase these funds on a regular basis each year to achieve the 1 percent goal by FY 2000.

Type of Legal Instrument

NASA has a variety of legally binding agreements through which it may implement its technology transfer policy. Included among these are contracts, grants, cooperative agreements, and reimbursable and nonreimbursable Space Act agreements. Where more than one type is suitable, the cognizant program office shall confer with legal counsel for assistance.

A grant should be used where the principal purpose of the relationship is to transfer funding or a thing of value to a recipient to carry out a public purpose of support or stimulation and where substantial involvement is not expected between NASA and the recipient. Typically, NASA uses grants to fund scientific research conducted at universities and nonprofit centers of learning.

A cooperative agreement should be used where the principal purpose of the relationship is to transfer funding or something of value to a recipient to carry out a public purpose of support or stimulation and where substantial involvement is expected between NASA and the recipient. Typically, NASA uses cooperative agreements to provide assistance in jointly sponsored research with individual companies and consortia, where NASA researchers are actively involved in the research effort.

An unfunded reimbursable or nonreimbursable Space Act agreement or a funded Space Act agreement should be used where NASA wishes: (i) to support external recipient needs where NASA may provide personnel, services, facilities, equipment, expertise, data, or other resources, or (ii) to share resources and results in a collaborative effort. If the principal purpose of the relationship does not involve the performance of work by the external recipient of an inventive type (i.e., experimental, developmental, or research work) for NASA, then NASA would not usually receive a license to any inventions patented by the recipient. NASA uses funded Space Act agreements in a limited number of cost-shared technology development efforts where NASA researchers may actively participate. Approval of the Administrator or specific delegation of authority is required before entering into a funded Space Act agreement.

NASA is required by law to use a procurement contract where the principal purpose of the instrument is to acquire property or services for the direct benefit or use of the U.S. Government.

Participant Selection in Partnerships

For funded partnership agreements, NASA shall require fair and equitable selection of its partners. For other partnering efforts, NASA shall offer fair access to NASA resources to all potential partners. For fair and equitable selections, selection shall be based upon such factors as technical merit, participants' ability to commercialize, partner resource availability, and cost-sharing commitment by participants. Each factor shall be given an appropriate weight, and shall be evaluated by NASA on the basis of information provided by the potential partner. In addition, NASA shall accept unsolicited partnership proposals which will compete against other unsolicited proposals for a finite pool of money. Unsolicited proposals shall not compete with solicited proposals and no proposal will be released or divulged to other parties.

Resource-Sharing Policies

For both solicited and unsolicited partnership proposals, NASA shall require substantial sharing of the resources necessary to accomplish completion of the proposal. Typically, NASA requires 50 percent resource sharing. When resource sharing is involved, the following guidelines shall apply:

a. For contract arrangements, OMB Circular A110 and the Federal Acquisition Regulations (FAR) will govern how industry partners shall account for expenditure of Government funds and substantiation of industry resource-shared contributions.

b. For other resource-sharing arrangements, generally accepted accounting principles (GAAP) will govern how industry partners shall account for expenditure of Government funds and substantiation of industry resource-shared contributions as appropriate.

c. Where appropriate, "fixed cost" milestones will be negotiated triggering partial Government payments for work performed, instead of requiring periodic submission of vouchers.

d. Independent R&D and bid and proposal costs (as a percentage of overhead) will be allowable to the maximum extent permitted by law and regulation.

e. Federal Government funding shall be permitted within the maximum limits allowed by the General Agreement on Tariffs and Trade (GATT) treaty without triggering GATT duties on commercial products resulting from such research partnerships.

Intellectual Property Rights

Intellectual property rights under procurement contracts are governed by the Federal Acquisition Regulations. In the area of computer software, it must be recognized that software is a valuable technology product and should be treated as any other invention, discovery, improvement, or innovation which is made in performance of work by a NASA employee, contractor, or grantee. Therefore, any significant computer software innovation or improvement should be reported to the Field Center intellectual

property counsel for determination of its suitability for patent protection and licensing.

Intellectual property rights under partnership agreements can be tailored, to some extent, to the particular circumstances of the agreement, but should be guided by the following principles:

a. NASA shall leave title to any inventions made by an employee of our partner, during the performance of any work under an agreement, with the partner. NASA shall retain title to any inventions made by NASA employees during performance of any work under the agreement. But, NASA shall make a best effort to grant the partner the first option for an exclusive license under any invention patented under the agreement by a NASA employee. NASA retains "march-in rights" and usually a license for governmental purposes in either case. In the case of joint inventions made by NASA employees and partner employees, NASA will support the commercialization of the invention in a manner consistent with NASA's need and not inconsistent with the partner's commercial interest or assign the Government's interest to the partner where allowed by law.

b. Any data produced by a partner prior to or under an agreement with NASA and furnished to NASA, which embodies trade secrets or comprises commercial or financial information that is privileged or confidential, must be withheld from public release under the Freedom of Information Act. Any data produced by NASA under an agreement, which would be a trade secret or commercial or financial information that is privileged or confidential if it had been produced by the partner, may be protected against dissemination for a period of up to 5 years after development of the information.

c. NASA shall leave title to copyrighted computer programs created by an employee of our partner, during the performance of any work under an agreement, with the partner. While computer programs created solely by NASA personnel are not protected by copyright, it is NASA policy to restrict the release of those computer programs, for a specific period of time, to those parties working under the agreement, as long as those parties are commercializing the software. NASA recognizes computer programs created jointly by NASA employees and partner employees as copyrightable and will refrain from exercising NASA's undivided interest in a manner inconsistent with the partner's commercial interest for a specific period of time.

Licensing of NASA Patents

NASA will actively promote the licensing of its technology for which a patent application has been filed. NASA advertises the availability of patents for licensing in the Federal Register and in other widely read publications. If multiple applicants apply, NASA will negotiate a licensing agreement with the responsible applicant or applicants who appear to have the greatest capability of commercializing the technology. For an exclusive or partially exclusive license, notice of a prospective licensee and identification of the invention is required to be announced in the Federal Register.

Commercial Products

NASA shall assess and procure commercially available products, services, data, or technology whenever practical. To accomplish this objective, each program and project manager shall make a diligent

attempt to locate commercially available products, services, data, or technology prior to making a decision to develop this capability. The program or project trade study leading to the decision to develop shall be documented. If a commercial product is available that would meet the NASA need with minor modifications, NASA will attempt to negotiate the appropriate modification. The passage of the Federal Acquisition Streamline Act in the fall of 1995 has eased the administrative and legal burden on the procurement of commercial items, thereby making their procurement even more attractive.

Organizational Conflicts of Interest

Participation with NASA in a properly constructed Space Act agreement or cooperative agreement for collaborative R&D efforts shall not, of itself, cause the exclusion of an industry participant from a later procurement of any goods or services related to the R&D effort. To help assure this, NASA will not ask a partner, as part of a cost-shared R&D effort, to develop a statement of work or specification that could be used on a follow-on procurement.

NASA shall not participate in a collaborative R&D effort which overlaps an existing contract, grant, or agreement or which provides a direct competitive advantage to the partner on an impending procurement.

Antitrust

NASA will encourage industry R&D consortia, funded by NASA, to notify the Department of Justice and Federal Trade Commission of their NASA-funded cooperative venture. This notice under the National Cooperative Research and Production Act of 1993, P.L. 103-42, 107 Stat. 177, qualifies consortium members to limitations on subsequent potential civil antitrust liability.

Foreign Participation in Partnership Agreements

Research and development conducted under partnership arrangements and activities undertaken for the purpose of commercializing partnership-derived products, processes, and services should ideally be carried out in the United States. However, in light of the international marketplace, deviations from this goal will be considered on a case-by-case basis to determine direct benefits to the U.S. economy. Likewise, products embodying intellectual property developed under partnership agreements should be substantially manufactured in the United States, but again, marketplace realities can dictate otherwise. It is up to the U.S. industry partner to demonstrate to NASA the benefits to the U.S. economy.

Use of Brokers

NASA encourages the innovative use of brokers to implement its commercialization technology policy. Expectations and relationships must be clearly defined and understood. Compensation for brokers will

be based on accomplishing performance-based milestones. Metrics should be negotiated and performance reviewed annually. All compensation must be based on performance. The opportunity for monetary awards from the Federal Government, state governments, and industry should be available.

Agency Role for Commercial Technology Development and Transfer

Commercial technology development and transfer is recognized as a mainstream function of the Agency and an integral part of the NASA mission. To demonstrate the value of commercial technology development and transfer, the Agency shall:

- Adequately staff the function at each Field Center;
- Provide appropriate training and education in technology transfer as part of managerial and executive development programs; and
- Foster ways to enhance interaction with industry.

Duties of NASA Employees

The Federal Technology Transfer Act of 1986 charges each laboratory science and engineering professional with responsibility for (only authorized) technology transfer, and further requires that each Center Director ensure that efforts to transfer technology are considered positively in job descriptions and in the evaluation of the job performance of scientists and engineers in the laboratory.

An addendum with the following statement will be added to the position description of appropriate science, engineering, and other professionals:

> *Identifies, develops, and facilitates the transfer of federally owned or originated technology resulting from research, development, design, or other technological advancement resulting from the accomplishment of assigned duties and responsibilities within Federal statutes governing the transfer of technology to domestic and foreign entities. Identifies other public or private sector organizations or entities which may benefit from the full use and disclosure of the technology. Files patent disclosure on any software, hardware, material, or process innovation. Initiates technology transfer recommendation through supervisor and higher management to Center technology transfer and commercialization functions.*

To enable employees to fulfill these requirements, appropriate training in technology transfer will be provided.

Electronic Commerce

The NASA Commercial Technology Mission shall be implemented to utilize, to the maximum practical extent, the benefits of modern electronic communications and decision support technology.

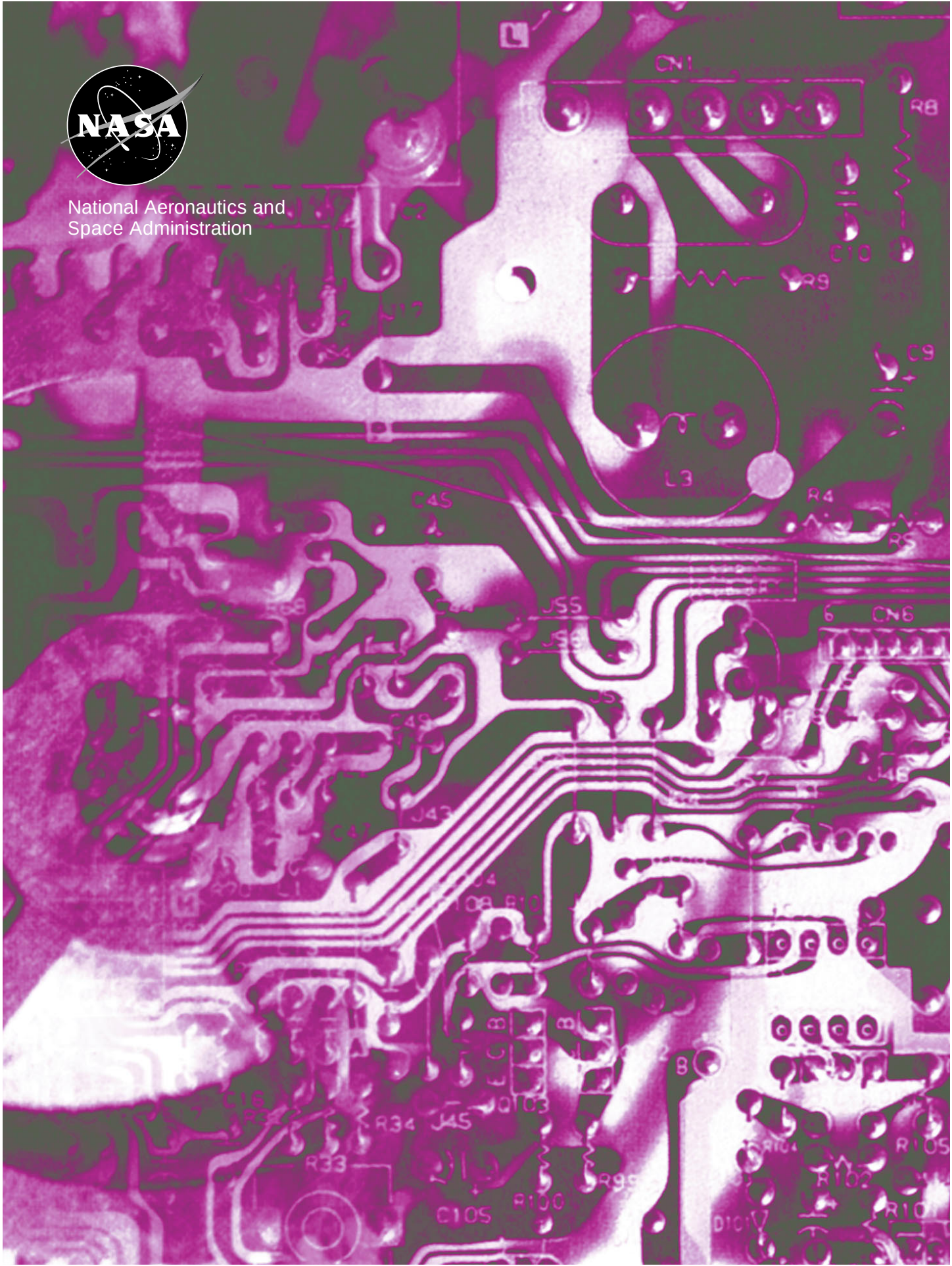
In particular, the application of electronic media and communications technology shall be preferred to older paper and physical communications technology. Where cost-effective, the mission shall move quickly toward the elimination of requirements for documentation, storage, transmission, and authentication using hard copy. (http://nctn.hq.nasa.gov/)

Policy Review

This policy document will be reviewed by the Commercial Technology Management Team every 6 months to assure relevance, accuracy, and clarity. The policy document will be a "living" document and will be improved as NASA's commercialization experience increases. The NASA Commercial Technology Policy subteam will continue as a standing body to the Commercial Technology Management Team to assure NASA's quick responsiveness on policy issues. The contact person for the Commercial Technology Policy subteam is Candace D. Livingston, (202) 358-0697.

Summary

It is essential that NASA lay a solid foundation for its new vision and emphasis on enabling commercial development, supporting development of dual-purpose technology, and transferring technology. This policy document offers the building blocks for accomplishing NASA's Commercial Technology Mission. Review and continuing improvement are the cornerstones to the success and relevance of NASA's commercial policies.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